AMENDMENTS TO THE CLAIMS

Please amend Claims 1, 16, and 29 as follows, without prejudice or disclaimer to continued examination on the merits:

1. (Currently Amended): A method for switching data lines, the method comprising:

establishing a configuration for a switch element, the configuration comprising a plurality of connections between data lines in a first plurality of data lines and data lines in a second plurality of data lines, the switch element including a set of ingress devices, a set of center stage devices, and a set of egress devices, each connection including at least one of the ingress devices, one of the center stage devices and one of the egress devices, wherein multiple connections are extended across each center stage device;

logically modeling the switch element and mapping a multi-stage logical model that represents the components of the switch element in multiple stages, comprising an input sorter, an input router, a center stage device, an output router, and an output sorter, to the switch element~~, wherein the set of ingress devices are modeled as one or more logical ingress devices, the set of center stage devices are modeled as one or more logical center stage devices, and the set of egress devices are modeled as one or more logical egress devices~~;

detecting a switching event;

selecting a portion of the plurality of connections, including one or more connections across at least one of the center stage devices; and

rearranging only the selected connections across at least one of the center stage devices in response to the switching event using the logical model.

2. (Previously Presented): The method of claim 1, wherein rearranging only the selected connections across the at least one of the center stage devices includes replacing a first connection of the selected connections across one of the center stage devices with a new connection across that center stage device.

3. (Original): The method of claim 2, wherein replacing a first connection of the selected connections across one of the center stage devices includes using a new egress device and a new ingress device for the new connection that replaces the first connection.

4. (Original): The method of claim 1, wherein rearranging only selected connections across at least one of the center stage devices includes identifying at least one of an ingress device and an egress device for each of the selected connections, and replacing the at least one of the ingress device and the egress device with a new ingress device or egress device respectively.

5. (Original): The method of claim 4, wherein rearranging only selected connections across at least one of the center stage devices includes identifying the egress device of one of the selected connections, and bridging from the center stage device for that connection to a new egress device to form the new connection.

6. (Original): The method of claim 1, wherein rearranging only selected connections across at least one of the center stage devices includes identifying the ingress device of one of the selected connections, and performing a select from the center stage device for that connection in order to replace the ingress device with the new ingress device.

7. (Original): The method of claim 1, wherein selecting a portion of the plurality of connections includes selecting at least a first connection between a first data line in the first plurality of data lines and a second data line in the second plurality of data lines, and then rearranging portions of the one or more selected connections

so that only one of the first data line or the second data line is switched to a third data line.

8. (Original): The method of claim 7, wherein the first connection includes a first ingress device in the set of ingress devices, a first center stage device in the set of center stage devices, and a first egress device in the set of egress devices, and wherein rearranging portions of the one or more selected connections includes selecting at least one of a second ingress device for connecting the second data line to a third data line, or selecting one of a second egress device for connecting the first data line to the third data line.

9. (Original): The method of claim 8, further comprising causing the first center stage device to bridge a communication from the first data line to the third data line.

10. (Original): The method of claim 8, further comprising causing the first center stage device to select a communication from the third data line to the first data line.

11. (Original): The method of claim 8, further comprising causing the first center stage device to multi-cast a communication from the first data line to a plurality of other data lines.

12. (Original): The method of claim 1, wherein each ingress device in the set of ingress devices includes a plurality of routers, the plurality of routers for at least the first ingress device connecting the first ingress device to each of the center stage devices in the set of center stage devices, and wherein establishing a configuration for the switch element includes configuring each router of at least the first ingress device to receive communications from only one of the first data lines.

13. (Original): The method of claim 12, where a number N represents a total of data lines in the first plurality of data lines that connect to a first ingress device in the set of ingress devices, a number S represents a total of routers in the first ingress device that are used, and wherein establishing a configuration for the switch element includes selecting the number N and the number N is an integer equal to or rounded up from a ratio of N/S.

14. (Original): The method of claim 11, wherein a number M represents a size of each router in the set of ingress devices, a number K represents a total of center stage devices in the set of center stage devices, and wherein establishing a switching configuration includes selecting the number M to be equal to the number K.

15. (Original): The method of claim 1, wherein each egress device in the set of egress devices includes a plurality of routers, the plurality of routers for at least the first egress device connecting the first egress device to all of the center stage devices in the set of center stage devices, and wherein establishing a switching configuration includes configuring each router of at least the first egress device to forward communications to only one of the second plurality of data lines.

16. (Currently Amended): A method for switching data lines across a switch element, the switch element being for connecting a first plurality of data lines to a second plurality of data lines, the switch element including a set of ingress devices connected to the first plurality of data lines, a set of egress devices connected to the second plurality of data lines, and a set of center stage devices, the method comprising:

configuring a switch element to connect multiple ingress devices in the set of ingress devices to multiple egress devices in the set of egress devices across a first center stage device in the set of center stage devices;

logically modeling the switch element and mapping a multi-stage logical model that represents the components of the switch element in multiple stages, comprising an input sorter, an input router, a center stage device, an output router, and an output sorter, to the switch element~~, wherein the set of ingress devices are modeled as one or more logical ingress devices, the set of center stage devices are modeled as one or more logical center stage devices, and the set of egress devices are modeled as one or more logical egress devices~~;

detecting a switching event; and

in response to the switching event, and using the logical model, performing at least one of the steps of (i) selecting from the first center stage device to connect a new ingress device to one of the multiple egress device connected to the first center stage device; (ii) selecting from the first center stage device to connect a new egress device to one of the multiple ingress devices connected to the first center stage device; and (iii) bridging from the first center stage device to connect a new egress device to one of the multiple ingress devices in the set of ingress devices.

17. (Original): The method of claim 16, wherein selecting from the first center stage device to connect a new ingress device to one of the multiple egress devices includes replacing one of the multiple ingress devices with the new ingress device.

18. (Previously Presented): The method of claim 16, wherein bridging from the first center stage device to connect a new egress device to one of the multiple ingress devices includes replacing one of the multiple egress devices with the new egress device.

19. (Previously Presented): The method of claim 16, wherein selecting from the first center stage device to connect a new egress device to one of the multiple ingress devices includes replacing one of the multiple egress devices with the new egress device.

20. (Original): The method of claim 16, wherein,

each ingress device in the set of ingress devices includes a plurality of routers, the plurality of routers for one of the set of ingress devices connecting that ingress device to all of the center stage devices in the set of center stage devices, and

configuring a switch element includes configuring each router of at least one of the set of ingress devices to receive communications from only one of the data lines in the first plurality of data lines.

21. (Original): The method of claim 20, wherein configuring a switch element includes assigning each data line in the first plurality of data lines to two or more router of one of the ingress devices in the set of ingress devices.

22. (Original): The method of claim 20, wherein,

a number N represents a total of data lines in the first plurality of data lines, each of the first plurality of data lines connecting to one of the routers of each ingress device in the set of ingress devices,

a number S represents a total of routers in each ingress device, and

configuring the switch element includes selecting the number N and the number S so that N is equal to an integer that is equal to or rounded up from a ration of N/S.

23. (Original): The method of claim 20, wherein a number M represents a size of each router in the set of ingress devices, a number K represents a total of center stage devices in the set of center stage devices, and wherein configuring a switch element includes selecting the number N to be equal to the number K.

24. (Original): The method of claim 16, wherein,

each egress device in the set of egress devices includes a plurality of routers, the plurality of routers for one of the set of egress devices connecting that egress device to all of the center stage devices in the set of center stage devices, and

configuring a switch element includes configuring each router of at least one of the set of egress devices to forward communications to only one of the data lines in the second plurality of data lines.

25. (Original): The method of claim 24, wherein,

a number N represents a total of data lines in the second plurality of data lines, each of the first plurality of data lines connecting to one of the routers of each egress device in the set of ingress devices,

a number S represents a total of routers in the each egress device, and

establishing a switching configuration includes selecting the number N and the number S so that N is an integer that is equal to or rounded up from a ration of N/S.

26. (Original): The method of claim 24, wherein a number M represents a size of each router in the set of egress devices, a number K represents a total of center stage devices in the set of center stage devices, and wherein configuring a switching element includes selecting the number M to be equal to the number K.

27. (Original): The method of claim 16, wherein configuring a switch element includes:

loading configuration information into an active bank from a stand-bye bank;

using configuration information in the active bank to determine the configuration for the switch element; and

wherein performing steps (i), (ii) and (iii) include accessing the active bank, without first reloading configuration information into the active bank from the stand-bye bank.

28. (Original): The method of claim 27, further comprising executing an algorithm to determine the configuration before loading the configuration information into the active bank from the stand-bye bank.

29. (Currently Amended): A switch element for connecting data lines, the switch comprising:

a set of edge devices coupled to a plurality of data lines, each edge device in the set of edge devices comprising one or more routers, each of the one or more routers being assigned only one data line in the plurality of data lines;

a set of center stage devices, each center stage device being connectable to one of the routers of each edge device, each center stage device being configurable to connect at least two corresponding edge devices in the set of edge devices so that each center stage device forwards communications exchanged between a data line connected to one of the set of edge devices to a data line connected to another one of the set of edge devices;

wherein each of the center stage devices are actuatable to (i) bridge communications from the data line of one edge device to a new edge device connected to a new data line; and (ii) select communications from a new edge device connected to a new data line to forward the communications to one of the edge devices already connected to the center stage device; and

wherein the set of edge devices are modeled ~~as one or more logical edge devices and the set of center stage devices are modeled as one or more logical center stage devices~~, in a multi-stage logical model that represents the components of the switch element in multiple stages, comprising an input sorter, an input router, a center stage device, an output router, and an output sorter.

30. (Original): The switch of claim 29, where the set of center stage devices includes a first center stage device that is connectable to one of the routers of each edge

device, including to one of the routers of a first ingress device in a set of ingress devices, and to one of the routers of an egress device in the set of egress devices, so that the first center stage device forwards communications exchanged between a data line of the first ingress device and a data line of the first egress device; and

wherein the first center stage device is actuatable to bridge communications from at least one of the first ingress device to a second egress device.

31. (Original): The switch element of claim 30, wherein the first center stage device is actuatable to bridge communications from at least one of the first ingress device to a second egress device while maintaining the first center stage device in connection with the first ingress device.

32. (Original): The switch element of claim 30, wherein the set of edge devices includes a set of ingress devices and a set of egress devices, so that the first center stage device forwards communications signaled from a first ingress device in the set of ingress devices to a first egress device in the set of egress devices, and wherein the first center stage device is actuatable to bridge communications from the first ingress device to a second egress device in the set of egress devices so that communications from a data line of the first ingress device is signaled to the center stage device and to the second egress device, thereby coupling a data line of the second egress device to the data line of the first egress device.

33. (Original): The switch element of claim 32, wherein the first ingress device comprises an ingress sorter that interconnects a first portion of the plurality of data lines to the plurality of routers for the first ingress device, and wherein the first ingress sorter is partitioned so that each router can receive communications from only one data line in the first portion of the plurality of data lines.

34. (Previously Presented): The switch element of claim 33, wherein each egress device in the set of egress devices includes an egress sorter that interconnects a second portion of the plurality of data lines to the plurality of routers for that

egress device, and wherein the first egress sorter is partitioned so that each of the plurality of routers can forward communications to only one data line in the second portion of the plurality of data lines.

35. (Original): The switch element of claim 34, wherein the routers of the ingress devices and the egress devices are configured to include fully non-blocking, port-to-port communication capabilities.

36. (Original): The switch element of claim 32, wherein the first center stage device is actuatable to bridge communications from the first ingress device to the second egress device if a working line connected to the first egress device fails.

37. (Original): The switch element of claim 36, wherein the second egress device is connect to a protect line for the working line of the first egress device.

38. (Original): The switch of claim 33, wherein a number N represents a total of data lines in the first portion of the plurality of data lines, a number S represents a total of routers in the first ingress device, and N is an integer that is equal to or rounded up from a ratio of N/S.

39. (Original): The switch of claim 33, wherein a number M represents a size of each router in a first ingress device in the set of ingress devices, a number K represents a total of center stage devices in the set of center stage devices, and the number M is equal to the number K.